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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/613,877

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Mustafa Eroz

PD-203021

7224

7590

09/07/2004

Hughes Electronics Corporation
Patent Docket Administration
Bldg. 1, Mail Stop A109
P.O. Box 956
El Segundo, CA 90245-0956

EXAMINER

VARTANIAN, HARRY

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 09/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/613,877

Applicant(s)

EROZ ET AL.

Examiner

Harry Vartanian

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-2, 4-11, 13-19 and 21-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-11, 13-19 and 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

Information Disclosure Statement

1. The IDS is objected to because of the following informalities: reference for flarion has a hypertext link in it "www.flarion.com". Please remove it.

Appropriate correction is required.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a) because they fail to show both unrestricted and restricted parity check matrix results as described in the specification in Para 101. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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Specification

2. The disclosure is objected to because of the following informalities:

Paragraph 0131, line 1 should read "Next, the decoder 305, per step [[1205]]**1005**...".

Paragraph 0167, line 10 should read "in storage device [[169]]**1609**..."

Appropriate correction is required.

Claim Objections

3. Claims 9 and 26 are objected to because of the following informalities: They are apparatus Claims dependent upon a method claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4-8, 13-17, and 21-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4-8 are dependent on a cancelled Claim 3.

Claims 13-17 are dependent on a cancelled Claim 12.

Claims 21-25 are dependent on a cancelled Claim 20.

Accordingly, the Claims have not been further treated on the merits.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 9, 10, 18, and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Demjanenko et al (United States Pre-grant Publication# US 20020150167 A1).

Regarding Claim 1, Demjanenko et al meets the following limitations of the Claim:

receiving one of a plurality of set of bits of a codeword from a binary Low Density Parity Check (LDPC) encoder for transforming an input message into the codeword, **fig 9**

non-sequentially mapping, according to the structure of the codeword, the one set of bits into a higher order constellation, and **Para 37 Note: Applicant defines "non-sequential" as interleaving**

outputting a symbol of the higher order constellation corresponding to the one set of bits based on the mapping. **fig 9**

Claim 9, Demjanenko et al meets the following limitations of the Claim:

A computer-readable medium bearing instructions for transmitting encoded signals, said instruction, being arranged, upon execution, to cause one or more processors to perform the method of claim 1. **Para 0155**

Claim 10, Demjanenko et al meets the following limitations of the Claim:

a binary Low Density Parity Check (LDPC-) encoder configured to transform an input message into a codeword represented by a plurality of set of bits; and **fig 9**

logic configured to map non-sequentially, according to the structure of the codeword, one set of bits into a higher order constellation, wherein a symbol of the higher order constellation corresponding to the one set of bits is output based on the mapping. **Para 37**

Claim 18, Demjanenko et al meets the following limitations of the Claim:

demodulating a received Low Density Parity Check (LDPC) encoded signal representing a codeword, **Para 0005-0006, fig 16**

wherein the encoded signal being modulated according to a non-sequential mapping based on the structure of the codeword, of a plurality of bits corresponding to the codeword; and **Para 37 Note: Applicant defines "non-sequential" as interleaving**

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decoding the codeword associated with the encoded signal. **Para 0005-0006, fig 16**

Claim 26, Demjanenko et al meets the following limitations of the Claim:

A computer-readable medium bearing instructions processing encoded signals, said instruction, being arranged, upon execution, to cause one or more processors to perform the method of claim 18. **Para 0155**

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 2, 11, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Demjanenko et al in view of Antia et al (United States Patent 6,347,124). Demjanenko et al meets all the limitations of the Claims(see above paragraphs) except disclosing the exact structure of the interleaver.

However, Antia et al states:

"The burst package may be an entire digital message composed of **N bits**, or if a conventional inter-burst interleaving transmission scheme is employed at the satellite 14 the burst package may be a portion of an N bit original message. For example, if inter-burst interleaving with **a depth of three is used**, then an **N bit original message** is transmitted from the satellite 14 to the GTSS 16 as three independent burst packages of **N/3 bits that have been interleaved as is known in the art.**" (Column 4, Lines 12-26)

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Moreover, using N/3 for 8-PSK is inherent since the symbol length has to be 3 bits long in order to have 8 constellation points. The use of N/4 for 16 constellation points and N/5 for 32 constellation points would be an obvious design choice, since it **does not** provide an advantage, is used for a particular purpose, or solves a stated problem. Therefor it would have been prima facie obvious to combine Demjanenko et al and Antia et al. A motivation to combine is stated by Antia wherein he states that the transmission and interleaving scheme is "known in the art."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry Vartanian whose telephone number is 571.272.3048. The examiner can normally be reached on 10:00-6:30 Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571.272.3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Harry Vartanian
Examiner
Art Unit 2634

HV



STEPHEN CHIN
SUPERVISORY PATENT EXAMINE
TECHNOLOGY CENTER 2800